

CLAIMS

1. A plate material (1), comprising:

a plate-like substrate (3) that does not have protrusions and depressions of submicron order oriented in the thickness direction thereof; and

5 a coating (5) that is formed on the surface of the substrate (3) and made of a paint-like material having affinity with respect to the substrate (3).

2. The plate material (1) recited claim 1, wherein the paint-like material is a hydrophobic organic paint-like material.

10 3. The plate material (1) recited in claim 1 or 2, wherein the surface tension of the paint-like material is equal to or larger than 25 and less than or equal to 35 dyn/cm.

4. The plate material (1) recited in any one of claims 1 to 3, wherein the paint-like material contains an alcohol-based solvent at a content of 1 to 10 wt%.

5. The plate material (1) recited in any one of claims 1 to 3, wherein the paint-like material contains an alcohol-based solvent at a content of 1 to 5 wt%.

15 6. The plate material (1) recited in claim 4 or 5, wherein the alcohol-based solvent is made substantially of an alcohol having four or more carbon atoms.

7. The plate material (1) recited any one of claims 1 to 6, wherein the viscosity of the paint-like material is equal to or larger than 5 pa-s and less than or equal to 20 pa-s.

8. The plate material (1) recited any one of claims 1 to 7, wherein:

20 the coating (5) is a corrosion resistant coating (5) that is formed with a corrosion resistant paint-like material and made of a hydrophobic organic compound; and

a hydrophilic coating (7) made of a hydrophilic paint-like material is also provided on the surface of the corrosion resistant coating (5).

9. The plate material (1) recited in claim 8, wherein the hydrophilic paint-like material 25 contains a volatile organic solvent.

10. A plate material (1) recited in claim 8 or 9, wherein the corrosion resistant coating (5) is formed on the surface of the substrate (3) that has not been subjected to a chromic acid treatment.

11. The plate material (1) recited in any one of claims 8 to 10, wherein the corrosion resistant 30 coating (5) is formed on the surface of the substrate (3) that has not been subjected to an oil removal treatment.

12. The plate material (1) recited in any one of claims 1 to 11, wherein the substrate (3) is made of pure aluminium or an aluminium alloy.

13. The plate material (1) recited in any one of claims 1 to 12, wherein the plate material (1) is used as a heat radiating fin (11) of a heat exchanger.

14. A plate material (1) manufacturing method, including:

5 a first step in which a plate-like substrate (3) that does not have protrusions and depressions of submicron order oriented in the thickness direction thereof on its surface is prepared; and

a second step in which a coating (5) is formed on the surface of the substrate (3) with a paint-like material having affinity with respect to the substrate.

10 15. The plate material (1) manufacturing method in accordance with claim 14, wherein the paint-like material is a hydrophobic organic paint-like material.

16. The plate material (1) manufacturing method recited in claim 14 or 15, wherein the paint-like material has a surface tension of 25 dyn/cm to 35 dyn/cm.

17. The plate material (1) manufacturing method recited in any one of claims 14 to 16, wherein the paint-like material contains an alcohol-based solvent at a content of 1 to 10 wt%.

15 18. The plate material (1) manufacturing method recited in any one of claims 14 to 16, wherein the paint-like material contains an alcohol-based solvent at a content of 1 to 5 wt%.

19. The plate material (1) manufacturing method recited in claim 17 or 18, wherein the alcohol-based solvent is made substantially of an alcohol having four or more carbon atoms.

20 20. The plate material (1) manufacturing method recited in any one of claims 14 to 19, wherein the viscosity of the paint-like material is equal to or larger than 5 pa-s and less than or equal to 20 pa-s.

21. The plate material (1) manufacturing method recited in any one of claims 14 to 20, wherein:

25 in the second step, a corrosion resistant coating (5) made of a hydrophobic organic compound is formed on the surface of the plate-like substrate (3) by applying a corrosion resistant paint-like material; and

a third step is provided in which a hydrophilic coating (7) is formed on the surface of the corrosion resistant coating (5) by applying a hydrophilic paint-like material.

22. The plate material (1) manufacturing method recited in claim 21, wherein

30 in the third step, the hydrophilic paint-like material containing a volatile organic solvent is applied.

23. The plate material (1) manufacturing method recited in claim 21 or 22, wherein

in the second step, the corrosion resistant paint-like material is applied on the substrate (3) that has not been subjected to a chromic acid treatment.

24. The plate material (1) manufacturing method recited in claim 21 to 23, wherein
in the second step, the corrosion resistant paint-like material is applied on the substrate
(3) that has not been subjected to an oil removal treatment.

25. The plate material (1) manufacturing method recited in any one of claims 14 to 24, wherein
5 the substrate (3) is made of pure aluminum or an aluminum alloy.

26. The plate material (1) manufacturing method recited in any one of claims 14 to 25, wherein
the plate material (1) is used as a heat radiating fin (11) of a heat exchanger.